CLAIMS

1. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof; said oil disengagement chamber partially separated from an effluent water chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber; said oil from water separator characterised in that outflow of said substantially oil free volume of water from said effluent water chamber is limited by flow retarding means to a rate of outflow which is a function of the head of the liquid in said effluent water chamber.

2. The separator of claim 1 wherein said flow retarding means is operable to accumulate said oil and water mixture in said oil disengagement chamber in an accumulation volume above a chamber low liquid level.

3. The separator of claim 1 or claim 2 wherein said flow retarding means comprises at least one siphon which primes at a chamber high liquid level and loses prime at said chamber low liquid level.

4. The separator of claim 1 or claim 2 wherein said flow retarding means comprises at least one bleed aperture or weep hole.

5. The separator of claim 4 wherein said at least one bleed aperture or weep hole is located at the level of said chamber low liquid level.

6. The separator of claim 1 wherein said flow retarding means is sized with reference to expected inflow of said oil and water mixture into said oil disengagement chamber such that, during operation, the level of said oil and water mixture will rise from said chamber low liquid level and then return to said chamber low liquid level, thereby defining an oil and water mixture accumulation volume above said chamber low liquid level.

7. The separator of claim 6 wherein said accumulation volume has a characteristic which is a function of

(a) inflow rate and

(b) desired residence time of said oil and water mixture in said oil disengagement chamber.

8. An oil from water separation system including an oil disengagement chamber having a flush storage volume defined between a chamber high liquid level and a chamber low liquid level; said flush storage volume caused to exit from said chamber on attainment of said chamber high liquid level.

9. The system of Claim 8 wherein said flush storage volume is caused to exit by means of a siphon mechanism.

10. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof; characterised in that outflow from said chamber is prevented until said mixture reaches a predetermined chamber high liquid level whereupon said volume of water is caused to exit said chamber.

11. The separator of Claim 10 wherein, on reaching said chamber high liquid level, outflow is initiated and maintained until a predetermined chamber low liquid level in said chamber is reached at which time outflow is terminated.

12. The separator of Claim 11 wherein said outflow is controlled by means sensitive to said chamber high liquid level and said chamber low liquid level.

13. The separator of any one of Claim 10 wherein said outflow is drawn from a point at said predetermined low level in said mixture.

14. The separator of Claim 12 or Claim 13 wherein said means sensitive to said chamber high liquid level and said chamber low liquid level is a siphon.

15. The separator of Claim 12 or Claim 13 wherein said means sensitive is a level switch actuated pumping system.

16. The separator of claim 10 wherein said flow retarding means operates so that outflow is prevented until said mixture reaches a predetermined chamber high liquid level whereupon said volume of water is caused to exit said chamber.

17. The separator of Claim 10 or Claim 11 wherein, on reaching said chamber high liquid level, outflow is initiated and maintained until a predetermined chamber low liquid level in said chamber is reached at which time outflow is terminated.

18. The separator of Claim 10 or Claim 11 wherein said outflow is controlled by means sensitive to said chamber high liquid level and said chamber low liquid level.

19. The separator of any one of Claims 10-18 wherein said outflow is drawn from a point at said predetermined low level in said mixture.

20. The separator of claim 10 wherein said flow retarding means comprises a retention wall having at least one aperture at a predetermined level passing therethrough; said at least one aperture adapted to regulate flow of water from said disengagement chamber when said mixture is above said predetermined level.

21. An oil from water separator including an oil disengagement chamber adapted to receive an oil and water mixture and retain it for an extended time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of

water having a layer of oil derived from said oil and water mixture floating on the surface thereof; characterised in that outflow from said chamber is controlled in a predetermined way by flow retarding means.

22. An oil from water separator including an oil disengagement chamber adapted to receive an oil/water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof; characterised in that outflow from said chamber is limited by flow retarding means to a predetermined function of the level of said oil and water mixture in said chamber.

23. The separator of claim 22 wherein said flow retarding means is operable only between a chamber low liquid level and a chamber high liquid level.

24. The separator of claim 23 wherein said flow retarding means comprises at least one siphon which primes at said chamber high liquid level and loses prime at said chamber low liquid level.

25. The separator of claim 22 wherein said flow retarding means comprises at least one bleed aperture or weep hole.

26. The separator of claim 25 wherein said at least one bleed aperture or weep hole is located at the level of said chamber low liquid level.

27. The separator of claim 22 wherein said flow retarding means is sized with reference to expected inflow of said oil and water mixture into said oil disengagement chamber such that, during operation, the level of said oil and water mixture will rise from said chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining for each situation an oil and water mixture active lag capacity or accumulation capacity between said higher liquid level and said chamber high liquid level.

28. The separator of claim 27 wherein said active lag capacity or accumulation capacity has a characteristic which is a function of

(a) inflow rate and

(b) desired residence time of said oil and water mixture in said oil disengagement chamber.

29. A method of conversion of a decant separator to a separator of the type defined by claim 1, said method comprising installing a flow retarding device in or in association with a weir wall of said decant separator whereby rate of outflow of said substantially oil free volume of water is a function of the head of the liquid in said effluent water chamber.

30. A flow retarding device for an oil from water separator of the type defined by claim 1.

31. An oil from water separator system comprising a plurality of oil from water separators of the type defined by claim 1,

said plurality of separators connected in series whereby outflow from a first separator passes to an inlet of our a second separator.

32. The system of claim 31 wherein decant overflow from said first separator passes to said inlet of said second separator.